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ABSTRACT

Wisconsin law requires school compliance with the eye safety code. Administrators or coordinators should hold monthly inspections, as well as annual meetings to explain the program and assign responsibilities. Safety coordinators should analyze activity hazards, and faculty should communicate the information to students. Eye equipment must meet specific standards. Additionally, eye safety programs should incorporate such elements as hazard analyses, emergency first aid procedures, use enforcement policies, and accident prevention controls. Protection device illustrations, protection area and safety materials information, and devices for various hazards recommendations are included. (KS)

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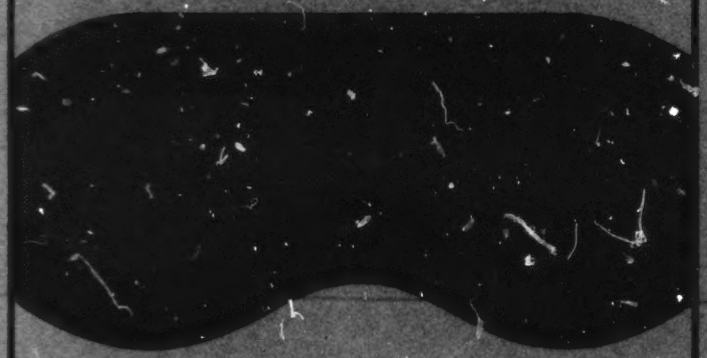
MANUAL FOR Eye Protection IN EDUCATIONAL INSTITUTIONS



WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION
HERBERT J. GROVER, STATE SUPERINTENDENT

EA 015 998

FIRST AID FOR EYE EMERGENCIES

CHEMICAL BURNS

Eye damage from chemical burns may be extremely serious, as from alkalis or caustic acids, or less severe, as from chemical irritants.

In all cases of eye contact with chemicals:

DO flood the eye with water immediately, continously, and gently for at least 15 minutes. Hold head under faucet or pour water into the eye using any clean container. Keep eye open as widely as possible during flooding.

DO NOT use an eye cup.

DO NOT bandage the eye.

SPRAY CANS are an increasing source of chemical eye injury, compounded by the force of contact. Whether containing caustics or irritants, they must be carefully used and kept way from children.

SPECKS IN THE EYE

DO lift upper eyelid outward and down over the lower lid.

DO let tears wash out speck or particle.

DO –if it doesn't wash out–keep eye closed, bandage lightly and see a doctor.

DO NOT rub the eye.

BLOWS TO THE EYE

DO apply cold compresses immediately for 15 minutes, and again each hour (as needed) to reduce pain and swelling.

DO –in case of discoloration or "black eye" which could mean internal damage to the eye–see a doctor.

CUTS AND PUNCTURES OF EYE OR EYELID

DO bandage lightly and see a doctor immediately.

DO NOT wash out eye with water.

DO NOT try to remove an object stuck in the eye.

PREVENT BLINDNESS

National Society to

Prevent Blindness

79 Madison Avenue, New York, NY

MANUAL FOR EYE PROTECTION IN EDUCATIONAL INSTITUTIONS

STATE OF WISCONSIN

WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION
HERBERT J. GROVER, STATE SUPERINTENDENT

Produced by

THE INDUSTRIAL AND SCHOOL EYE SAFETY COMMITTEE
of
NATIONAL SOCIETY TO PREVENT BLINDNESS — WISCONSIN

Revised 1984

Bulletin No. 4335

The Department of Public Instruction does not discriminate on the basis of race, sex, age, religion, handicap, or national origin.

Foreword

Serious accidents involving visual damage and loss of sight occur in educational institutions throughout the country. As educators, we are called upon to teach the obvious—the high value of unimpaired vision and the means of protecting and maintaining vision.

Facilities in today's educational institutions enable students to gain a variety of practical experiences. As a result, students, instructors, and visitors are exposed to hazardous situations that could result in serious injury unless adequate protection is provided.

Industry has proven time and again the merits of 100 percent eye protection. It is vital that educational institutions benefit from their experiences. Eye protection will only be effective to the degree that positive attitudes toward safety are developed.

Preparing this manual involved a joint effort by professionals on the Industrial and School Eye Safety Committee of the National Society to Prevent Blindness—Wisconsin. Committee members included representatives from the following organizations: Wisconsin Council of Safety; American Society of Safety Engineers; Department of Public Instruction; Industrial Safety Council; Wisconsin School Safety Coordinators Association; Wisconsin Insurance Alliance; Wisconsin Association of Manufacturers and Commerce; Department of Vocational, Technical and Adult Education; Department of Industry, Labor and Human Relations; Ophthalmology Section of the Medical Society of Wisconsin; Wisconsin Optometric Association; and the Opticians Association of Wisconsin. As background for preparing the manual, the committee reviewed literature and research studies, including the "Manual for Eye Protection in Educational Institutions" from Delaware's State Department of Public Instruction. All contributed generously and made helpful suggestions based on wide and varied experiences.

Guide for Implementing Eye Protection Programs in Wisconsin Schools

The eye safety law stipulates in section 146.015(4) of the Wisconsin statutes that: "The state superintendent of public instruction shall prepare and circulate to each public and private educational institution in this state instructions and recommendations for implementing the eye safety provisions of this section." In addition, section 101.01(2)(e) stipulates that "frequenter means every person, other than an employe, who may go in or be in a place of employment or public building under circumstances which render the person other than a trespasser. Such term includes a pupil or student when enrolled in or receiving instruction at an educational institution." Expanding the term "frequenter" permits state safety inspectors from the Department of Industry, Labor and Human Relations to include students as well as school employees and visitors in safety inspection coverage and gives them the responsibility for enforcing sec. 146.015.

It is the responsibility of each educational institution's administration to assure compliance with this law. Regular orientation meetings should be held at least annually with the entire staff to fully explain the program and assign responsibilities for its implementation. The administrator should emphasize that compliance with and enforcement of the statutes are requirements of the instructional process.

An administrator or school safety coordinator[1] should conduct an inspection at least monthly to determine compliance with the law. Infractions should be immediately corrected. Repeated violations should be corrected by administrative action.

Each staff member has the reponsibility of assuring that those persons in affected areas (whether visitors, students, faculty, or others) wear proper eye protection devices.

School safety coordinators should fully analyze the eye hazards involved in activities for which they are responsible and make faculty members aware of their responsibility for explaining to students the need for the type of eye protection specified.

For other eye hazard exposures not covered in this guideline, the hazard must be analyzed by the school safety coordinator in conjunction with the administrator to determine the appropriate eye protection required by the American National Standard Institute.

General Information

All eye protection equipment must meet the current standards of the American National Standard Institute (ANSI), Practice for Occupational and Educational Eye and Face Protection, Code Z87.1 - 1968, and subsequent revisions thereof. Prior to delivery and in bid specifications suppliers must certify that devices for order meet the above mentioned standards.

1. Advantages of Industrial Safety Spectacles Over Standard Eyewear
   A. Safety lenses have greater thickness than standard eyewear to help resist breaking.
   B. Safety lenses are manufactured or treated to give greater strength.
   C. Safety lenses are fitted into the frame to reduce the possibility of a lens being pushed into the eye upon impact.
   D. Industrial safety spectacle frames are made of special materials for greater strength and fire resistance.
   E. Industrial safety spectacles equipped with side shields afford added protection.
2. Personal Eyewear
   A. Those desiring to wear their own prescription industrial safety spectacles may do so providing they meet the ANSI Z87.1 - 1968 standards and subsequent revisions thereof.
   B. Those wearing nonapproved personal eyewear must wear chemical goggles meeting the ANSI Z87.1 - 1968 standards and subsequent revisions thereof.
   C. F.D.A. "impact resistant" lenses do not meet ANSI Z87.1 - 1968 standards.
3. Contact Lenses

   The National Society to Prevent Blindness has issued the following position statement on the use of contact lenses in eye-hazardous work areas. This position statement applies to educational institutions as well as industry.

[1] "The responsibility for developing a total safety program should be delegated to a competent professional staff person who will be directly responsible to the superintendent or designee. The role of this person should include a combination of administrative and coordinator responsibilities concerned with the overall safety aspects of the school system; the title--School Safety Coordinator." (*Emergency Care Policies and Procedures for Wisconsin Schools*, Page 6, Paragraph 2. Published by the Division of Health, Wisconsin Department of Health and Social Services.)

Contact lenses, of themselves, do not provide eye protection in the industrial sense. For occupational use, contact lenses should be worn only in conjunction with appropriate industrial eye protection. [2]

The employer (educational institution) should identify any contact lens wearer for appropriate emergency care and protection in hazardous work areas.

Contact lenses may be worn in many occupations. They provide an adequate means of visual rehabilitation for employes who have had a cataract removed from one or both eyes, who are highly nearsighted, or who have irregular astigmatism from corneal scars of keratoconus. However, when the work environment entails exposure to chemical fumes, vapor, or splashes; intense heat; molten metals; or a highly particulate atmosphere, contact lens use should be restricted. Certain federal or state regulations may also limit their use. [3]

Students or others should inform their teachers/instructors, school nurse, or supervisor if they are wearing contacts.

4. Phototropic Lenses

The ANSI Z87.1 – 1979 standards do not allow the use of lenses whose depth of tint changes when exposed to varying amounts of daylight (phototropic or photochromic lenses) for indoor industrial use. It permits them for outdoor use only if it does not involve hazardous ultraviolet or infrared radiation. If used, they must be marked distinctly and permanently with the symbol "V" (variable) as well as the manufacturer's monogram.

5. Maintaining Eye Protection Devices

MAINTENANCE

Safety eyewear lenses must be kept clean. Continuous vision through dirty lenses can cause eye fatigue and contribute to accidents. Lenses should be cleaned as needed.

Pitted or scratched lenses reduce vision and seriously reduce protection. They must be replaced immediately.

Slack, worn-out, sweat-soaked, knotted, or twisted headbands cannot hold an eye protector in its proper position. Replace headbands before they become inadequate.

Store eye-protection equipment in suitable cases or containers when not in use.

DISINFECTION

Protectors are a personal item and should be used exclusively by the person to whom they are issued. They should be cleaned and disinfected regularly. If circumstances require reissuing or sharing, the protectors must first be cleaned and disinfected.

Procedure: Thoroughly clean all surfaces with soap or a suitable detergent and warm water. Carefully rinse off all traces of soap or detergent. Completely immerse the protector for 10 minutes in a solution of modified phenol, hypochlorite, or quaternary ammonium compound in a strength specified by the manufacturer and at a room temperature of 68° F. Remove the protector from the solution and suspend it in a clean place for air drying at room temperature or with heated air. Do not rinse; rinsing will remove the residual effect.

Ultraviolet disinfecting equipment may be used instead of the immersion described above, provided that such equipment can offer disinfection equal to the immersion.

When protectors need extensive cleaning, disassemble them to the extent possible without tools (prior to washing and disinfecting). Replace the defective parts with new ones.

Once the equipment is cleaned, disinfected, and thoroughly dry, place it in a clean, dustproof container.

6. Using Cover Goggles

All cover goggles must be of the approved ANSI chemical type to provide maximum eye protection for all types of exposure.

Controlling Eye Injuries

In order for your eye safety program to be effective, the following elements should be included:

1. Eye Hazard Analysis

Before you order protective eyewear, conduct a thorough analysis of the hazards that might be

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[2] To be of industrial quality, safety eyewear devices must meet or exceed all the requirements of the American National Standard Practice for Occupational and Educational Eye and Face Protection Z87.1 – 1979, or later revisions thereof, published by the ANSI.

[3] Wearing of contact lenses in contaminated atmospheres with a respirator shall not be allowed – as per OSHA Safety and Health Standards 29 CFR 1910.134 (e)(5)(ii).

encountered in your operations. Examine your eye-accident data. Review each of your operations. Do they present hazards? (Use the enclosed table to analyze potential eye hazards.)

2. Vision Problems

Uncorrected vision problems can contribute to accidents. Persons with suspected vision problems should seek a professional evaluation immediately. In the case of students, parents should be notified.

3. Use Enforcement

When protective eyewear has been provided, insist upon its use. Institute a written policy of strict enforcement. Post signs to indicate areas where protective eyewear is required.

4. Fitting and Maintenance

You cannot expect people to use protective eyewear unless it fits them properly. The lenses must be positioned correctly, and the device must be comfortable and nonirritating.

Protective eyewear must be kept clean and in good condition. Provide the means for maintenance, and require that all persons be responsible for the eye protection issued to them. Lens-cleaning stations should be placed in areas to help keep protective eyewear in good condition. Antifogging products can often help reduce fogging of lenses and should be available in areas where this problem occurs.

5. Emergency First Aid Procedures

Provide for eye-injury first aid in your emergency procedures. Any delay or an early mistake in dealing with an eye injury can result in permanent damage. Place emergency eyewashes in all hazardous locations. Post detailed first aid instructions close to each potential danger spot. (Use back cover of manual.)

6. Education

Establish an on-going education program to motivate everyone to use their protective eyewear. Add eye safety to your orientation. Make the subject part of your regular education plan. Institute a Wise Owl Chapter (see page 8 for a brief description of the Wise Owl Club). Take advantage of the wide selection of films and publications available from the National Society to Prevent Blindness – Wisconsin (see pages 7-8).

7. Administrative Commitment

One person must be responsible for coordinating an effective eye safety program. Everyone must be made aware of their obligation and must set an example by wearing protective eyewear whenever and wherever required.

8. Prevent Accidents from Occurring

Proper training, machine guards, shields, or other engineering controls can help prevent eye accidents or can reduce the injury's severity when an accident occurs.

Illustrations Of Eye Protection Devices

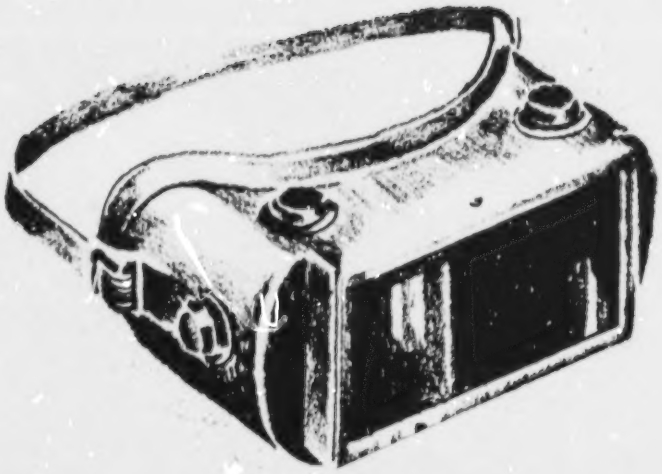
Safety Spectacles with Full Cup Side Shields and Comfort Cable Temples

Face Shield – .040 Minimum Thickness or Metal Screen Face Shield (as needed). *Not a primary eye protection device-should be used in conjunction with safety spectacles or goggles. (Face shield is also available with wire screen window for use with molten metal.)*

Safety Spectacles with Full Cup Side Shields and Spatula Temples

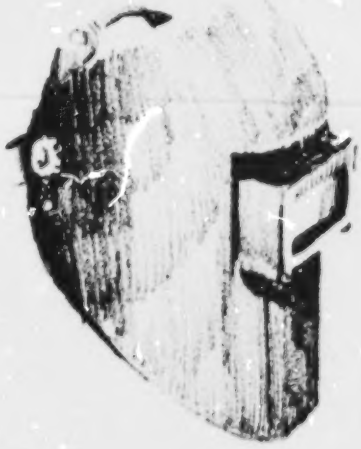
Face Shield with Wire Screen Window

Safety Spectacles with Semiflat Fold Side Shields



Welding Goggles (coverspec type)-- Excessive Glare, Welding Spatter, Burning or Cutting Operations. Special plates (or lenses) protect against the dangerous infrared and ultraviolet radiation. *Not recommended as a primary protection device-should be used in conjunction with safety spectacles. (This device can be used for chipping if clear safety lenses are substituted.)*

Chemical Goggles with Hooded Vents-- Flexible Fitting for Protection Against Chemical Splash and Flying Particles. Goggles for dust and splash with indirect ventilation ports on top of goggle or around periphery of lens to exclude direct passage of dust or liquid.



Welding Helmet for Arc Welding. This device offers protection for welding spatter, sparks, and dangerous infrared and ultraviolet radiations. *Not recommended as a primary protection device-should be used in conjunction with safety spectacles with attached side shields or goggles.*

Visitor Spectacles with Side Shields. *Only for temporary use by visitors. Do not meet ANSI Z87.1 - 1979 standard.*

Eye Protection Areas

1. Physical and Biological Science Laboratories, Industrial Education, Art, and Other Miscellaneous Classrooms

   A. Eye protection devices should be worn in all areas (labs, classrooms, and demonstration areas) where chemicals are handled and where any activity or operatior is potentially hazardous to the eye.

   B. Operations that are particularly hazardous (implosions, explosions, or high intensity radiation) require special protection.

   C. Where demonstrations are shielded or isolated, eye protection is not required. However, all persons exposed to hazards are required to use approved protective eyewear.

   D. Visitors and frequenters to hazardous areas must wear eye protection devices as required.

   E. Each staff member has the responsibility to ensure that those persons in a hazardous area (visitors, students, faculty, or frequenters) wear approved eye protection.

2. Maintenance and Custodial Activities

   Maintenance and custodial activities expose the eyes to a variety of hazards. These activities are similar to typical shop and laboratory practices and require that protective equipment be used.

   Visitors or frequenters to maintenance shops or areas where custodial or maintenance activities are being performed must be kept out of the exposed areas or wear approved eye protection as required.

3. Visitors

   Visitors shall wear visitors' eye protective devices with side shields or chemical goggles where required.

4. Hazard Warning Signs

   All eye-hazardous areas should be so designated.

For a copy of American National Standard Institute (ANSI), Practice for Occupational and Educational Eye and Face Protection, Code Z87.1 – 1968, and subsequent revisions thereof, *write*:

American National Standard Institute
(ANSI)
10 East 40 Street
New York, N.Y. 10016

Available Eye Health And Safety Materials

All of the following are available by contacting:

NATIONAL SOCIETY TO
PREVENT BLINDNESS–WISCONSIN
759 NORTH MILWAUKEE STREET
MILWAUKEE, WI 53202
(414) 765-0505

GUIDES

1. *Manual for Eye Protection in Educational Institutions*

   A guide to the use of eye protection devices in Wisconsin schools. **FREE**

2. *Children's Eye Health Guide*

   A new 32-page source book for school nurses and teachers. Answers questions, such as who should be screened and when, what tests to use, and how to do it. Valuable reference section on first aid and safety. **$4.00**

3. *Teaching About Vision*

   Teaching aids and references for the classroom teacher, health educator, and science teacher involved in promoting eye health. Includes illustrations, glossary, and bibliography. **$2.00**

TEACHING PACKETS

1. *The Eyes Have It* (Grades K-3)

   Teacher's packet guide to teaching eye health and safety at home and school, with spirit masters for classroom activities (Can be used with or without companion film, *The Eyes Have It*). **$2.00**

2. *The Magic of Sight*—Multimedia Kit on the Eye (Grades 5-6)

   Thirteen-minute color filmstrip and audio cassette teaches about vision, eye health, and safety. Includes a teacher's guide, 22" x 28" chart of the eye, a folder illustrating how the eye works, first aid sticker, three quiz testing sheets, and crossword puzzle sheet. **$12.50**

3. *An Option to See*–Teacher's Packet on Lab and Shop (Grades 7-12)

   Comprehensive package to encourage eye protection wherever needed; designed primarily for lab and shop classes. Includes teacher's guide, 24" x 31" poster, four overhead transparencies, 11 spirit masters, and first aid sticker. (Can be used with or without companion film, *An Option to See*) **$4.00**

FILMS

(Purchase prices for films provided on request. Free film loan with $5.00 postage and handling fee.)

1. *Eye Safety for Educators*

   Twenty minutes, 16mm, color, sound: Panel discussion on school eye safety for inservice teacher, administrative, and supervisory staff training.

2. *The Eyes Have It* (Grades K-3)

   Eight minutes, 16mm, color, sound: Marionettes demonstrate eye safety in a catchy song and dance routine. (Can be used with supplementary teaching packet)

3. *An Option to See* (Grades 7-12)

   Seventeen minutes, 16mm, color, sound: Encourages students to use safety eyewear in labs and shops. (Can be used with supplementary teaching packet)

4. *It's Still Up to You* (Mature audiences)

   Twelve minutes, 16mm, color, sound: Forceful industrial eye safety message including an eye surgery sequence.

5. *Don't Push Your Luck* (Mature audiences)

   Thirteen minutes, 16mm, color, sound: Vividly depicts a blinding eye accident in an industrial plant.

6. *Protect Your Eyes on the Job*

   Thirteen minutes, 16mm, color, sound: Designed to motivate the wearing of eye protection. Bill Frank talks about his life since his blinding industrial accident and shows his blinded eyes.

7. *Eye and Face Protection in Chemical Laboratories*

   Fourteen minutes, 16mm, color, sound: Vividly demonstrates the potential for personal injury from chemical explosions and the effectiveness of various personal-protective devices.

8. *For the Rest of Your Life*

   Sixteen minutes, 16mm, color, sound: Demonstrates inherently dangerous properties of anhydrous ammonia fertilizer. Describes handling precautions, proper equipment use, first aid procedures, and eye and face protection.

9. *Expedite School Eye Safety*

   Twelve minutes, 16mm, color, sound: Describes eye hazards in school and college chemistry laboratories, industrial arts classes, and industrial shops and the specific eye safety equipment recommended.

POSTERS

1. *See Your Future. . . Wear Safety Eyewear Now*

   Three colors, 24" x 31" **$1.00 each**

2. *Kiss Your Eyes Goodbye–If You Don't Protect Them, You Might as Well Throw Them Away*

   Four colors, 24" x 37" **$1.75 each**

3. *Give Your Eyes a Sporting Chance–Use Eyeguards for All Racquet Sports*

   Two colors, 12" x 18" **$1.00 each**

THE WISE OWL CLUB OF AMERICA

The Wise Owl Club of America is an incentive program designed to reduce costly eye injuries and loss of sight by encouraging the widespread use of proper eye protection. Sponsored by the National Society to Prevent Blindness and its state affiliates, the Wise Owl Club awards membership to those who have saved their sight by wearing proper eye protection during an accident.

A chapter of the Wise Owl Club may be established by simply completing and mailing an application form. An accident does not have to occur in order to establish a Wise Owl Chapter.

For more information on the Wise Owl Club, contact:

National Association to Prevent
Blindness—Wisconsin
759 North Milwaukee Street
Milwaukee, WI 53202
(414) 765-0505

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5000-3E47603-84

RECOMMENDED EYE PROTECTION DEVICES FOR VARIOUS OPERATIONAL HAZARDS

Operation	Hazard	Recommended Eye Protection Devices
GENERAL CATEGORIES		
Chipping, hammering, drilling, grinding, sanding, chiseling, shaping, and compressed air	Flying particles, sparks	Safety spectacles equipped with attached side shields *or* chemical goggles
Lubricating, spray painting, steam and solvent cleaning	Grease, oil, hot steam, mists, splashing materials	Chemical goggles ***(For severe exposure, add face shield)***
BATTERY SERVICE		
Cable jumping and servicing	Acid splashing, explosion	Chemical goggles
CARPENTRY		
All operations	Flying nails, stock kickback, chips, dust	Safety spectacles equipped with attached side shields *or* chemical goggles ***(For severe exposure, add face shield)***
CHEMICAL HANDLING	Splashing, spilling	Chemical goggles ***(For severe exposure, add face shield)***
CONCRETE WORK, STONE, CLAY, GLASS	Flying chips, dust, splashing	Safety spectacles with attached side shields *or* chemical goggles
ELECTRICAL	Electrical contact, arcing, sparks	Industrial safety spectacles with side shields (nonmetallic frames recommended) *or* chemical goggles
FOOD AND BEVERAGE PROCESSING	Splashing liquids, grease, chemical cleansing agents, flying particles and objects	Safety spectacles with attached side shields *or* chemical goggles where hazardous conditions exist
FOUNDRY		
Chipping and grinding, core and mold making	Flying chips, sand, and parting compound	Safety spectacles equipped with attached side shields *or* chemical goggles ***(For severe exposure, add face shield)***
Heating and pouring metal	Splashing and sputtering molten metal	Safety spectacles equipped with attached side shields *or* chemical goggles ***(For severe exposure, add face shield)***
LASER	High intensity radiation	Specific special protection is required for each type of high intensity radiation
METAL		
All operations (including annealing and heat treating, bending and shaping metals, drilling, etching, forging, grinding, metal spinning, riveting, sawing, snipping, soldering, tinning, cleaning, and finishing)	Flying particles and projectiles; lubricants; lint; buffing compounds; sparks; abrasives; rivets; sputtering solder, flux, and fluids	Safety spectacles equipped with attached side shields *or* chemical goggles ***(For severe exposure, add face shield)***
Pouring molten metal	Splashing, spilling	Safety spectacles equipped with attached side shields *or* chemical goggles ***(For severe exposure, add face shield.)***
PAINTING		
Spray painting, coating, and related operations	Spraying, splashing, spilling	Safety spectacles with attached side shields *or* chemical goggles ***(For severe exposure, add face shield)***
PLASTICS AND OTHER SYNTHETIC MATERIALS		
Buffing, carving, drilling, forming, sanding, sawing, sealing, shaping, wrapping	Flying dust	Safety spectacles equipped with attached side shields *or* chemical goggles ***(For severe exposure, add face shield)***
Molding, heating, mixing, pouring	Splashing, spilling	
PLATING		
Pickling, plating, handling of acids, caustics, cleaning operations	Splashing, spilling	Chemical goggles ***(For severe exposure, add face shield)***
WELDING		
Electric arc, inert gas	Welding flash, flying sparks and flux, sputtering welds, fumes, gases, rays, air bubble explosions	Welding helmet *over* safety spectacles equipped with attached side shields *or* chemical goggles
Gas welding, brazing, cutting, burning, metalizing	Flying sparks and metal	Welding helmet *over* safety spectacles equipped with attached side shields *or* chemical goggles
Spot resistance welding	Flying sparks	Safety spectacles equipped with attached side shields *or* chemical goggles ***(For severe exposure, add face shield)***
Chipping welds and other work	Flying chips, slag, and sparks	Safety spectacles equipped with attached side shields *or* chemical goggles ***(For severe exposure, add face shield)***

BEST COPY AVAILABLE